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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/573,395	03/22/2006	Robert Malek	0072US/PCT	5423
44064 7590 03/30/2009 THERMO FINNIGAN LLC 355 RIVER OAKS PARKWAY SAN JOSE, CA 95134				
EXAMINER				
VO, HEN XUAN				
ART UNIT		PAPER NUMBER		
2863				
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/573,395

Applicant(s)

MALEK ET AL.

Examiner

HIEN X. VO

Art Unit

2863

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 January 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-25 and 28 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-25 and 28 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-8508)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 101

1. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 1-25 rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. The claims are not tied to a particular machine or apparatus, or transform a particular article to a different state or thing.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-6, 8, 19, 28 rejected under 35 U.S.C. 103(a) as being unpatentable over Gedcke et al. (U.S. Patent No. 5,995,989) in view of McLafferty et al. (US Patent No. 4,008,388).
4. With respect to claims 1, 19, 28, Gedcke et al. disclose a method and apparatus for compression and filtering of data associated with spectrometry that includes reading data corresponding to a spectrum (see e.g. col. 8, lines 56-59); carrying out a statistical analysis of noise within the read data to obtain at least one statistical moment or parameter related to the distribution of the noise (see e.g. col. 10, lines 54-58); determining a threshold value from the at least one obtained statistical moment or

parameters (see e.g. Fig. 7, steps 36, 40-42, 45); identifying peaks in the spectrum by comparison of the data points in the spectrum to the said threshold value (see e.g. Fig. 7); except for teaching storing information related to the identified peaks along with the at least one obtained statistical moment or parameters.

5. McLafferty discloses the mass spectrometric system for rapid, automatic and specific identification and quantitation of compounds including storing information related to the identified peaks along with the at least one obtained statistical moment or parameters (see e.g. Figs.4-6, col. 21, lines 11-22, col. 27, lines 40-56). Therefore, it would have been obvious to one of the ordinary skill in the art at the time the invention was made to include the storage means as taught by McLafferty in a method and apparatus for compression and filtering of data associated with spectrometry of Gedcke for the identification and/or separation of composite signal that can lead to manipulate the test signal and storing the manipulated test signal.

6. With respect to claims 2-10, Gedcke et al. disclose the invention as claimed including the step of storing the information related to the identified peak comprises storing the data points of the peaks and discarding the noise data (see e.g. abstract, lines 17-21, col. 10, lines 62-64); generating a mass spectrum subsequent to the step of storage (see e.g. col. 1, lines 11-17); comprising displaying the mass spectrum (see e.g. Fig. 6); the step of displaying comprises displaying only the identified peaks without also displaying the noise in the read data (see e.g. col. 7, lines 8-16); generating a mass spectrum with includes both peak data and noise data, by combining the stored peak data with the reconstructed noise data (see e.g. col. 2, lines 13-20); at least one

statistical moment or parameter is selected from the list comprising an expectation value, a standard deviation, and a variance (see e.g. Fig. 7, step 36); the threshold is $EN + xDN$ (see e.g. col. 3, lines 2-4, col.10, lines 5-7); wherein x is about 2.5 (see e.g. col. 10, line 8).

7. With respect to claims 15, 16, Gedcke et al. disclose the invention as claimed including determining the position of magnitude of the centre of any identified peaks (see e.g. col. 7, lines 30-43), and wherein storing any centre positions and magnitudes (see e.g. col. 7, lines 43-48); identifying peaks by recognizing strings of three or more consecutive data points greater than the threshold (see e.g. Fig. 7, steps 40, 45).
8. With respect to claims 20-25, the limitation of these claims are similar to claims 1-10, 15-16. They are therefore considered rejected as set forth above.

Reason of allowable

Claims 11-14, 17-18, objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims and further overcome the 35 U.S.C. 101 rejection above.

9. The following is a statement of reasons for the indication of allowable subject matter:
10. For the claim 11 is that thought is known in the prior art the mass spectral data is claimed, it is neither taught nor suggested the noise in the read data is Weibull-distributed and identifying at least one statistically moment of the read data which best

fits that Weibull distribution. This step has not been found, taught or suggested by the prior of record which made the claim allowable over the prior art.

11. For the claim 12, the prior art is neither taught nor suggested the mass spectrometric data is time of flight mass spectrometer (TOF MS) data, wherein the noise in the read data is Poisson-distributed, and identifying at least one statistical moment of the read data which best fits that Poisson distribution. This step has not been found, taught or suggested by the prior of record which made the claim allowable over the prior art.

12. For the claim 13, the prior art is neither taught nor suggested the step of carrying out a statistical analysis of the noise comprises: obtaining a best fit of the read data to a predetermined distribution; determining, from that best fit, at least one preliminary statistical moment; generating a preliminary threshold based on the, at least one, preliminary statistical moment; removing from the read data, all data points above that preliminary threshold; and re-calculating a best fit of that truncated read data to a predetermined distribution so as to obtain the said at least one statistical moment or parameter related to that noise.

For the claim 17, the prior art is neither taught nor suggested the steps of determining the positions of two or more identified peaks, comparing the positions to determine whether they are part of any predetermined isotopic sequence and, if they are, storing data points at positions corresponding to other expected peaks within the isotopic sequence.

For the claim 18, the prior art is neither taught nor suggested the steps of determining the position of any unidentified peaks, comparing any peaks to determine any matches to predetermined parent/fragment molecular masses and, if any matches are found, storing data points corresponding to other expected peaks within the parent/fragment group.

The applicant stated that the prior art in sum, neither disclose the recited steps of carrying out a statistic analysis of noise within the read data to obtain at least one statistical moment or parameter related to the distribution of the noise, determining a threshold value from the statistical moment(s) or parameter(s), identifying peaks in the spectrum by comparing data points to the determined threshold, and storing information relating to the identified peaks together with the statistical moment(s) or parameter(s). However, the prior art still reads on the limitations of the claimed invention for example Gedcke discloses a method and apparatus for compression and filtering of data associated with spectrometry (see abstract); reading data (see e.g. Fig. 6), a threshold value, identifying peaks in the spectrum, storing information (see e.g. Fig.7).

13. Applicant's arguments with respect to claims 1-25, 28 have been considered but are moot in view of the new ground(s) of rejection.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to HIEN X. VO whose telephone number is (571)272-2282. The examiner can normally be reached on M-F (9:00-5:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Drew A. Dunn can be reached on (571) 272-2312. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Hien Vo

03/23/09

Drew A. Dunn
/Drew A. Dunn/
Supervisory Patent Examiner, Art Unit 2863